

## **REMARKS**

### ***Claim Amendments***

Upon entry of the foregoing amendment, claims 9-16 are pending in the application. Claims 9, 10, 14, and 16 have been amended. Claims 1-8 and 17-21 were previously canceled without prejudice or disclaimer to the subject matter therein. Applicant reserves its right to pursue this subject matter in one or more divisional and/or continuation applications.

Support for the amendments to the claims can be found throughout the specification and in the claims as originally filed, for example, at ¶¶ 30, 44, 95, and 96 and Table 1. Applicant respectfully requests entry of the above amendment and submits that the above amendment does not constitute new matter.

### ***Claim Objections***

Claim 14 was objected to for informalities. Applicant has amended claim 14 to remedy this informality, rendering this objection *moot*.

### ***Claim rejections – 35 U.S.C. § 112, second paragraph***

Claims 9-16 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Applicant respectfully traverses this rejection.

Claim 9 has been amended to indicate that the DNA region recited in part (II) of the claim is operably linked to the plant-expressible promoter in part (I) as well as the 3' end region in part (III) of the claim and that parts (I), (II), and (III) are linked to each other in sequence, by inserting the phrase "(an isolated DNA molecule comprising) in sequence the following operably linked DNA fragments."

Claim 9 has further been amended to clarify that the ParG inhibitory RNA molecule comprises a sense nucleotide sequence of at least 40 consecutive nucleotides of a coding region and further comprises an antisense nucleotide sequence of at least 40 consecutive nucleotides of said coding region (and not of the *complement* of said coding region). The amendments to claim 9 also overcome the rejection against claims 10-14. Similar amendments have been made to claim 16, thereby overcoming the similar rejections against claim 15, which is dependent from claim 16.

Applicant has amended claims 9 and 16 thus rendering this rejection *moot*.

***Claim rejections – 35 U.S.C. § 112, first paragraph (enablement)***

Claims 9-16 stand rejected under 35 U.S.C. § 112, first paragraph, because the specification, while allegedly being enabling for a DNA molecule comprising a plant expressible promoter operably linked to an 163 bp of the ParG coding region of SEQ ID No 3 (positions 973 to 1135) in the sense and antisense orientation separated by an intron, and further operably linked to a 3' end transcription termination signals, to produce an inhibitory double-stranded RNA molecule when expressed in transgenic Arabidopsis, Brassica, or tobacco plant, and wherein said transgenic plant exhibits high light stress tolerance, or a method of producing said transgenic plant using said DNA molecule, does not reasonably provide enablement for a DNA molecule comprising at least 20 or 21 to 100 nucleotides in sense and antisense orientation for any region of a nucleotide sequence encoding the protein of SEQ ID NO: 1. The Office Action maintains the rejection on the grounds that antisense/sense or dsRNAi based suppression methods are allegedly highly unpredictable citing Arziman *et al.* (2005) Nucleic Acids Research 33: 582-588.

Without acquiescing to the appropriateness of the rejection, Applicant has amended claim 9 to indicate that “*introduction of the DNA molecule into a plant results in a plant tolerant to high light stress*” and claim 16 has been amended to indicate that in step (c) a plant line is identified “*which is tolerant to high light stress conditions.*” See the specification at Example 5.

Claims 9 and 16 have also been amended to refer to a sense and antisense nucleotide sequence of at least 40 consecutive nucleotides. See the specification at ¶ 58. Applicant submits that Thomas, *et al.* (2001) Plant Journal 25: 417-425 (“Thomas”) evaluated size constraints for targeting post-transcriptional gene silencing. Thomas teaches that fragments of at least 23 nucleotides long could induce silencing of the target (*i.e.*, transgenic plants comprising a GFP transgene.) Thomas at pages 418-419. Applicants submit that, in view of at least Thomas, it was thus generally known in the art at the time of filing the application that fragments of at least 23 nucleotides of a particular gene, and thus at least 40 nucleotides of that particular gene, could be used to downregulate gene expression. Thomas at Table 1.

In view of the foregoing, Applicant respectfully requests withdrawal of the rejection.

***Claim rejections – 35 U.S.C. § 102***

Claims 9-16 stand rejected under 35 U.S.C. § 102(a) as allegedly anticipated by WO 03/000898 Chang, *et al.* ("the '898 publication.")

Without acquiescing to the appropriateness of the rejection, Applicant has amended claims 9, 14, and 16. In as far as the rejection still applies to the amended claims, Applicant provides the following comments.

The '898 publication describes 6813 nucleotide sequences which are differentially regulated in response to pathogen infections (i.e., a biotic stress condition) not high light intensity or any other abiotic stress condition, of which SEQ ID No. 550 appears to be similar to the ParG gene sequence of SEQ ID NO. 3.

The general teaching of the '898 publication suggests that altering expression (downregulation as well as upregulation) of resistance genes of any of the nucleotide sequences could result in pathogen resistance but not tolerance to high light stress in plants as currently claimed. See, e.g., Examples 9 and 10. Therefore the '898 publication does not suggest that ParG gene expression can be reduced to obtain high light stress tolerance in plants, let alone that such a reduction could occur by a ParG inhibitory RNA molecule.

Furthermore, contrary to the Office Action, the '898 publication does not disclose downregulation of endogenous ParG gene expression in a plant comprising transformation of a DNA construct comprising sense and antisense sequences of SEQ ID No. 550 which yields a double stranded inhibitory RNA molecule to downregulate or inhibit endogenous ParG gene expression in said plant, let alone that the double stranded inhibitory RNA molecule should comprise at least 40 consecutive nucleotides of the targeted ParG coding region. In fact, the '898 publication is silent on the ParG gene. The only general mechanisms described in the '898 publication to downregulate any of the 6813 nucleotide sequences are antisense, ribozymes, and cosuppression. The '898 publication at page 98, line 15; line 32 and page 99, line 6. Finally, Applicant submits that a further distinguishing feature of the currently claimed invention, i.e. that the inhibitory RNA is used to produce high light stress tolerant plant cells and plants and, at best, the '898 publication is only related to obtaining plants having pathogen resistance.

In view of the foregoing, Applicant respectfully requests withdrawal of the rejection.

**CONCLUSION**

Applicant respectfully submits that the pending claims are in condition for allowance, and such disposition is earnestly solicited. Should the Examiner believe that any issues remain after consideration of this Response, the Examiner is invited to contact the Applicant's undersigned representative to discuss and resolve such issues.

It is believed that no other fees are required for entry of these remarks, but should any fees be necessary, the Commissioner is authorized to charge such fees to **Deposit Account No. 50-0206**.

Respectfully submitted,

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